

THE DOUBLE-SHELL TETRACONCH BUILDING AT PERGE IN PAMPHYLIA AND THE ORIGIN OF THE ARCHITECTURAL GENUS*

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About 1955 John B. Ward-Perkins first visited Perge in Pamphylia and examined the ruins of a double-shell centralized structure lying in the northwest quarter of the city. His field notes and sketch plan of the ruins (Fig. 1) make the following observations: "The walls of the central element consist of two faces of good reused limestone masonry with a concreted core of odd rubble. The outer walls are of rather haphazard piers of masonry alternating with stretches of loosely mortared rubble. In other words the breaks in the central walls are far less clear and I would not draw too many conclusions from the incidence of individual blocks. There may have been a door at the west end. There obviously was not towards the east."¹

When I visited Perge in 1969 I was able to confirm what Ward-Perkins had seen. Although the site was heavily overgrown, remains of both the inner and outer shells of an aisled tetraconch building were visible; those of the inner walls stood to a height of ca. 3 m (Fig. 2). Impressively large, the edifice measured about 33.5 m in length. The central unit measures about 10 m on a side, its corners bounded by powerful angled walls about 1.5 m in thickness. A very shallow bay separated the eastern exedra from this core; such a bay is absent

on the other three sides of the central square.² A broken black-gray granite(?) shaft resting on a base stood in the east exedra (but not necessarily in its original position), and fragments of other shafts were to be seen in the vicinity. Scarce as they are, the visible remains suggest that all four exedrae opened into the ambulatories through segmental openings screened with a pair of columns. The outer walls, which are not quite as thick as and are more poorly preserved than the inner ones, may have closely repeated the tetraconch configuration of the inner walls, as is suggested in Ward-Perkins' plan. Yet it should be noted that nothing survives above ground of the outer south wall. These walls are coeval with the inner shell, for the same large limestone blocks occur. Although the walls of the structure were repaired at some point, the spolia used in their construction are original elements. It is impossible to say whether doors pierced the outer segmental walls to the north and south. The only evidence of any neighboring structure is the so-called palaestra to the south (see below). Finally, the building was single-storied; galleries did not surmount the ambulatories.

Ward-Perkins' restored plan of the building suggests that it was covered by a central dome. Although the walls of both shells seem to be thick enough to withstand the thrusts exerted by a masonry dome, the pair of walls at the western end of the central element is designed differently from

*The term genus is used in this paper not in any biological sense, implying an orderly development of the species in time (such a natural progression for tetraconchs is in fact herein denied), but to refer to a class of buildings marked by the same salient double-quatrefoil layout. Genus is analogously used by scholars examining the development of the basilican building in the late antique period: see, e.g., R. Krautheimer, "The Constantinian Basilica," *DOP* 21 (1967), 115–40. Krautheimer also refers to the architectural genus of the double-shell tetraconchs and octaconchs: *Three Christian Capitals: Topography and Politics* (Berkeley, 1983), 86.

¹Private correspondence, 1965.

²A much deeper bay is seen in the "approximate" sketch plan (not drawn to scale) of the inner shell which was published by H. Buchwald, "Western Asia Minor as a Generator of Architectural Forms in the Byzantine Period: Provincial Back-Wash or Dynamic Center of Production?" *JÖB* 34 (1984), 206, fig. 4. Buchwald visited the site in 1983. For the double-shell concept used in this paper, see W. L. MacDonald, *The Pantheon: Design, Meaning, and Progeny* (Cambridge, Mass., 1976), 105.

that at the eastern end and strikes me as too insubstantial to support a masonry dome. The visible remains of the eastern walls appear homogeneous, so that they seem not to have been modified after the initial construction of the edifice. Hence the eastern exedra was probably vaulted by a masonry semidome, though no fragments of a dome or other masonry coverings were to be seen at the site in 1969. Unless the tetraconch was originally hypaethral, the central element may therefore have been covered by a squat masonry tower with a wooden roof.³ And perhaps wooden roofs sheltered the other three exedrae and even the ambulatories.

The first visitor to publish a plan of the tetraconch was Pierre Trémaux (Fig. 3).⁴ Although the site may have been less overgrown in his day, his plan of the building, while correctly indicating a double-shell layout, is inaccurate in several respects. It shows a perfectly symmetrical design without the shallow eastern bay recorded in Ward-Perkins' plan, as well as a pair of columns not only in each of the four inner conchs but also in each of the outer segmental walls. It also suggests that the tetraconch formed one of two structures standing inside of a large rectangular enclosure which Trémaux terms a "palaestra (?)." While this identification of the complex has remained problematical (see below), the tetraconch was not enclosed by, but stood outside of, the walls of the palaestra. This was first established by K. G. Lanckoronski who visited Perge in the 1880s and who published a plan of the city ruins in 1890 (Fig. 4).⁵ While Lanckoronski confirmed Trémaux's observation that the tetraconch was exactly aligned on the central axis of the palaestra, he found that it was situated just to the north of its northern perimeter wall and was connected to this wall by a flight of stairs. Today no trace of any such stairs is to be seen, and Ward-Perkins in *litteris* doubted that the tetraconch was physically connected to the palaestra. Concerning the interior disposition of the pa-

³I thank Stephen Sinos for discussing this problem with me. Like Ward-Perkins, Buchwald, op. cit., 206 note 25, reconstructs masonry coverings. For a parallel to what I am proposing, see G. H. Forsyth, "Architectural Notes on a Trip through Cilicia," *DOP* 11 (1957), 230 f; M. Gough, ed., *Alahan: An Early Christian Monastery in Southern Turkey Based on the Work of Michael Gough*, Pontifical Institute of Mediaeval Studies, Studies and Texts 73 (Toronto, 1985), 112 f.

⁴P. Trémaux, *Exploration archéologique en Asie Mineure* (Paris, 1865–68), III, pl. 1 (of the Perga-Mourtana fasc.).

⁵K. G. Lanckoronski, ed., *Städte Pamphyliens und Pisidiens*, in collaboration with G. Niemann and E. Petersen (Vienna, 1890), I, 43 note 1 and figs. 26, 30.

laestra, Lanckoronski found evidence only of a peristyle courtyard. Today no remains of any other interior elements are visible.

Apart from the Hellenistic circuit walls, the palaestra is the earliest dated monument in the city.⁶ A bilingual inscription records a dedication to Emperor Claudius (or Nero) by C. Iulius Cornutus and his wife and freedman.⁷ The Greek inscriptions were placed on the street entrance over the doors and windows of the south wall, and the Latin on the side.⁸ C. Iulius Cornutus was a member of the cream of Anatolian aristocracy and is associated with other donations of some pretensions.⁹ Later, when Emperor Hadrian erected the colonnaded *decumanus maximus* of the city, the palaestra affronted it.¹⁰

The palaestra is the largest structure recorded inside the city walls. Its south wall extends for 76.2 m.¹¹ That the complex was originally built to function as a palaestra was already questioned by nineteenth-century travelers to the site. In Roman architecture a palaestra normally formed part of a gymnasium, and its sides were taken up by chambers serving as exercise rooms and school rooms.¹² Since remains of such rooms at Perge are wanting,

⁶The standard work on Perge remains Lanckoronski, loc. cit. See also A. M. Mansel and A. Akarca, *Pergede kazilar ve Arastirmalar: Excavations and Researches at Perge* (Ankara, 1949); G. E. Bean, *Turkey's Southern Shore: An Archaeological Guide* (London, 1968), 45 ff; idem, "Perge," in *The Princeton Encyclopedia of Classical Sites*, ed. R. Stillwell (Princeton, 1976), 692–93; J. B. Ward-Perkins, *Roman Imperial Architecture* (Harmondsworth, 1981), 299–302; and the summaries of excavations of selected sites at Perge by A. M. Mansel, "Bericht über Ausgrabungen und Untersuchungen in Pamphylien," *AA* (1956), 34–120, esp. 99 ff; *AA* (1975), 49–96, esp. 57–96. For a history of the city, see A. Pekman, *Perge tarihi; History of Perge*, Türk Kurumu Yayınlarından, VII. Seri—64, Antalya Bölgesinde Arastirmalar 9, Researches in the Region of Antalya 9 (Ankara, 1973).

⁷IGRRP², III, no. 789. C. C. Vermeule, *Roman Imperial Art in Greece and Asia Minor* (Cambridge, Mass., 1968), 489, believes that the building, which he identifies as a "gymnasium(?)", may have originally honored Caligula, "at least on its oldest side."

⁸This Cornutus also similarly honored Claudius (or Nero) on the epistyle of the West Gate of Perge (CIL, III, 6734).

⁹For the Cornutus family, see S. Jameson, "Cornutus Tertullus and the Plancii of Perge," *JRS* 55 (1965), 54–58; S. Mitchell, "The Plancii in Asia Minor," *JRS* 64 (1974), 27–39, esp. 35 ff.

¹⁰Vermeule, op. cit., 489. Exactly how the south wall of the palaestra was connected, if at all, to the colonnaded street has not been established.

¹¹Lanckoronski, op. cit., figs. 26, 30. The agora (or Macellum?) near the Hellenistic Gate, excavated in 1970–72, measures 75.92 × 75.90 m (Mansel, *AA* [1975], 76).

¹²For the Roman gymnasium, see J. Delormé, *Gymnasion: Etude sur les monuments consacrés à l'éducation en Grèce (des origines à l'Empire romaine)*, BEFAR 196 (Paris, 1960), esp. 198, 321, 423, 476; J. Delormé and W. Speyer, *RAC* 97–98 (1984), 155–76, s.v. "Gymnasium," esp. 173, for the Christian conversion of pagan gymnasia. The "palaestra" at Perge is cited in neither of these studies.

the function of the complex remains in doubt. Its size and location clearly indicate that it was a most important civic building of the early empire.¹³ Possibly it created a context for the presentation of the Imperial Cult.¹⁴

The exact alignment of the tetraconch on the central axis of the palaestra suggests that the latter was well preserved and still functioning when the tetraconch was constructed, but the function of the palaestra may have changed during the interval.¹⁵ It may be surmised that if the palaestra remained a secular complex, even if its exact purpose was altered over the years, then the tetraconch was probably also, at least at the outset, a secular or pagan building. Since the preserved walls of the palaestra disclose no trace of Christianization, this identification receives some support. On the other hand, any evidence of Christian usage of the site would probably have been eradicated in more recent centuries.¹⁶ Quite clearly, excavations are needed to clarify this and other pressing questions about the site.

The technique of construction of the tetraconch proves that it is not coeval with the palaestra but was erected subsequently. Whereas the palaestra walls are constructed of fine dressed limestone masonry, the walls of the tetraconch incorporate not only large limestone blocks but also rubble and reused classical elements, with bricks and brick

¹³The Pergaean “palaestra” calls to mind Building M at Side, a monumental rectangular structure (88.5 × 69.2 m) with a peristyle courtyard. Its northeast side comprised three chambers: a large central hall (a “Kaisersaal”) flanked by a pair of colonnaded rooms. But see note 14 below.

¹⁴For the special imperial sites in Asia Minor, often known as *Sebasteion* or *Kaisereion*, see S. R. F. Price, *Rituals and Power: The Roman Imperial Cult in Asia Minor* (Cambridge, 1984), 133–69. That the edifice at Perge had been built as a private Claudianum is suggested by F. K. Yegül, “A Study in Architectural Iconography: *Kaisersaal* and the Imperial Cult,” *ArB* 64 (1982), 19 note 63. Building M at nearby Side, an Antonine structure (see note 13 above) is another example of an independent porticus building in Asia Minor whose use and purpose are difficult to pin down (*ibid.*). A. M. Mansel, *Side* (Ankara, 1978), 169–86, figs. 184–204, identified Building M as a state agora, and the center hall on the northeast side a *Kaisersaal* (*Imperator Salonus*). Do these buildings hark back to an Italian source? Compare the large, single-shelled circular temple, of unknown dedication and late Severan date, at Ostia: C. C. Briggs, “The ‘Pantheon’ of Ostia . . . ,” *MAAR* 8 (1930), 161–69.

¹⁵Changes in the functions of large public Roman buildings are well known in Asia Minor and Greece—e.g., the gymnasium complex in the Agora at Athens.

¹⁶Buchwald, *loc. cit.*, identifies it as a church because of its eastern bay. For early Christianity and the survival of paganism in late antique Perge, see Pekman, *op. cit.*, 43 ff, 97 ff. I have been unable to consult E. Galanis, ‘Η Πέργη τῆς Παμφυλίας. Συμβολή στὴν πολιτικὴ καὶ ἐκκλησιαστικὴ ἴστορία τῆς ἀρχαίας πόλεως’, *Analecta Vlatadon* 40 (Thessaloniki, 1983).

chips in the vertical joints (Fig. 5).¹⁷ The tetraconch cannot be associated with the fine marble construction that makes its appearance in Perge under Hadrian.¹⁸ Nor is its masonry like the rebuilding in brick of the peripteral “tholos” in the center of the so-called agora (or macellum?), near the Hellenistic Gate of Perge, which Mansel attributes to the “early Byzantine” period.¹⁹ The absence of clamp or dowel holes in the surviving masonry of the tetraconch indicates that the walls were never faced with marble plaques. Exactly when spolia were introduced into the construction of buildings at Perge has not been established. They occur in Basilica B, a church which Rott dated to the fourth century, and they are characteristic of the Byzantine ruins on the acropolis above the palaestra.²⁰ Reused materials were also incorporated in repairs made to the large Baths to the southwest of the palaestra, possibly of the early third century A.D. The date of these repairs has not been determined. For now, it is reasonable to assume that spolia began to be used at Perge no earlier than the fourth century, and this may be taken as a tentative terminus post quem for the tetraconch.²¹

Do other structures laid out as aisled tetraconchs provide a clue to the dating and the original func-

¹⁷Lanckoronski, *op. cit.*, 169, no. 41, publishes the fragmentary inscription carved on a reused architrave, which was still in situ in 1969, on the south side of the northeast section of the inner shell. Three of these pieces measured 1.60, 1.45, and 1.05 m in length and 0.43 m in height. Lanckoronski wondered whether the tetraconch was erected on the site of a destroyed, preexisting building (*ibid.*, 42 f); nothing visible at the site today bears this out.

¹⁸Ward-Perkins, *Roman Imperial Architecture*, 299 f.

¹⁹Mansel, *AA* (1975), 83, fig. 47. The “tholos” became a domed church.

²⁰H. Rott, *Kleinasiatische Denkmäler* (Leipzig, 1908), 50 (this is Basilica N₁₁ in Lanckoronski’s city plan, my Fig. 4). Basilica B (Lanckoronski’s Basilica N₁) preserves spolia and is also dated by Rott to the 4th century (*ibid.*), but R. Krautheimer, *Early Christian and Byzantine Architecture*, 3d ed. rev. (Harmondsworth, 1981), 116, fig. 62, places it in the 5th or 6th century, and Pekman, *op. cit.*, 99, in the 6th century. For the ruins on the acropolis incorporating spolia, see Mansel and Akarca, *op. cit.*, 67, figs. 95, 101–2. Impost capitals found here are pre-iconoclastic.

²¹For the use of spolia in the structures of the episcopal palace at Side, which has been attributed to the 5th or 6th century, see A. M. Mansel, *Side. 1947–1966 Yılları Kazıları ve araştırmalarının sonuçları*, Türk Tarih Kurumu Yayınları, V. Seri—Sa 33, Antalya Bölgesinde Araştırmalar 10 (Ankara, 1978), 69, 267–72; B. Brenk, *Spätantike und frühes Christentum* (Frankfurt, 1977), 165, no. 29. Buchwald, *loc. cit.*, rules out a pre-Constantinian dating for the Pergaean tetraconch on account of its use of spoils. Cf. F. W. Deichmann, *Die Spolien in der spätantiken Architektur*, SBMünch, Phil.-hist. Kl. (1975), Heft 6; idem, “Säule und Ordnung in der frühchristlichen Architektur,” *RM* 55 (1940), 114–30, rpr. in his *Rom, Ravenna, Konstantinopel, Nacher Osten. Gesammelte Studien zur spätantiken Architektur, Kunst und Geschichte* (Wiesbaden, 1982), 159–86.

tion of the building at Perge? Twenty-two other such double-shell edifices are known throughout the Mediterranean basin and beyond. They are recorded in Italy (at Milan and at Canosa in Apulia), in Greece and the Balkans (at Athens, Lake Ochrid, Perushtitsa, and Adrianople), in Egypt (two at Abu Mina), in Syria and Mesopotamia (at Seleucia Pieria, Apamea, Bosra, Aleppo, Rusafa, Akdeğirmen Hüyük, and Amida), the south coast of Asia Minor (Corycus), in Armenia (at Zvart'noc^c, Bana [Banac], and Işhani), and in Soviet Azerbajdžan (at Lekit).²² The salient features of some of these examples are known with certainty, those of others only from reconstructions. Still, all belong to the same architectural genus. In all of these buildings the central core of the edifice was square (or oblong), its corners marked off by L-shaped piers, with an exedra of columns or piers springing outward from the center of each of the four sides. (In the examples in the Balkans, the eastern exedra is replaced by an apse opening directly off the core.) Ambulatories envelop this quatrefoil core on three or four sides, and they are enclosed by perimeter walls which are either straight or echo the shape of the quatrefoil core. Galleries are either present or wanting. And the auxiliary chambers attached to the main body of the building vary widely, depending upon local needs and practices.

Methodologically it is wrongheaded to compare the arrangement of the characteristic formal elements of these buildings for the purpose of trying to establish the date of any one of them.²³ Although these buildings are members of a distinctive architectural genus, they did not evolve from

simple to complex or from complex to simple. The securely dated examples prove that no linear pattern of development marks their forms in time. In size, the presence or absence of galleries above their ambulatories, the method of construction and roofing, whether vaulted in masonry or covered with timber roofs, the form of their interior and exterior decoration, they exhibit no Darwinian-like evolution. Other genera in late Antiquity and Byzantium, such as the aisled basilica or cross-in-square church, also fail to appear chronologically in a predictable manner. Suffice it to draw attention to the importance of local conditions reshaping the configuration of an imported model. In adapting a prototype to a new foundation, local officials had to take cognizance of local requirements, resources, and other capabilities. These factors altered the prototype so fundamentally as to obfuscate a visible association between exemplar and "copy." Moreover, even in late Antiquity, as today, architects would have wanted to express themselves in the redesigning of models. Such a process of adaptation is historically documented in late Antiquity in, say, the foundation of the Holy Sepulcher compound at Jerusalem, where Emperor Constantine, while supplying the funds and his imperial office probably the plan (see below), left it to the local bishop, Macarius, to work out the details, such as the liturgical disposition of the compound.²⁴ A related process was surely at work in the numerous medieval "copies" of the Anastasis Rotunda at Jerusalem which, as Richard Krautheimer demonstrated long ago, bear little formal relationship to their distinguished prototype.²⁵

We may wonder for what reason or reasons the aisled tetraconch edifices were built. With one possible exception, all recorded examples of this genus were definitely erected as church buildings.²⁶

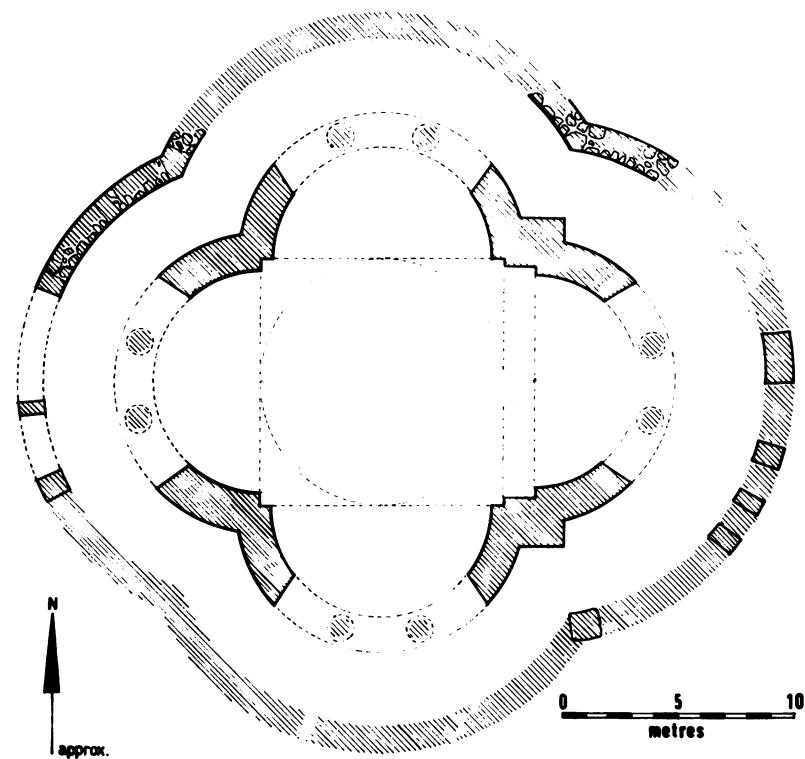
²² I published a map of these sites in *DOP* 27 (1973), fig. 17, opp. 113. Plans of most of these buildings are conveniently published by P. Grossmann, "Die zweischaligen spätantiken Vierkonchenbauten in Ägypten und ihre Beziehung zu den gleichartigen Bauten in Europa und Kleinasiens," in *Das römisch-byzantinische Ägypten. Akten des Internationalen Symposiums 26.–30. September 1978 in Trier* (Mainz, 1983), fig. 3. The aisled tetraconch at Lin on Lake Ochrid in Albania has been published only in part. Evidently it resembles quite closely the tetraconch on the Yugoslavian side of the lake, even though it is termed a basilica in Albanian reports. See note 26 below. For a preliminary excavation report on the tetraconch at Akdeğirmen Hüyük, near the Euphrates in southeastern Turkey, see H. Candemir and J. Wagner, "Christliche Mosaiken in der nördlichen Euphrates," in *Studien zur Religion und Kultur Kleinasiens: Festschrift für Friedrich Karl Dörner zum 65. Geburtstag am 28. Februar 1976*, ed. S. Sahin, E. Schwertheim, and J. Wagner (Leiden, 1978), I, 205 ff, text fig. 1 (plan), pls. LXXIV–LXXIX; H. Hellenkemper, "Kirchen und Klöster in der nördlichen Euphrates," op. cit., 407; and note 26 below. For Canosa, see note 26 below.

²³ Compare the remarks in my review of J. Morganstern, *The Byzantine Church at Dereagzi and Its Decoration* (Tübingen, 1983), in *AJA* 90 (1986), 141.

²⁴ See p. 289 below.

²⁵ R. Krautheimer, "Introduction to an 'Iconography of Medieval Architecture,'" *JWarb* 5 (1942), 1–33, rpr. in his *Studies in Early Christian, Medieval and Renaissance Art* (New York, 1969), 115 ff, with Postscript.

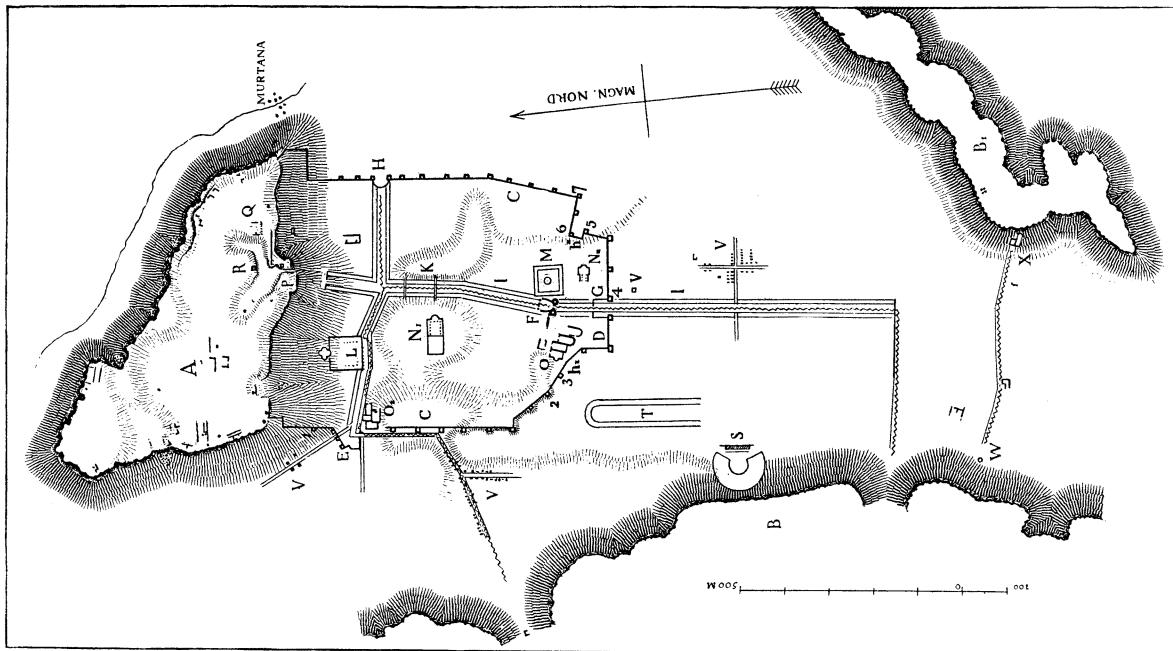
²⁶ For the purposes of the Syrian examples, see my paper "The Origin and Functions of the Aisled Tetraconch Churches in Syria and Northern Mesopotamia," *DOP* 27 (1973), 89–114; and M. M. Mango, "The Architecture of the Syriac Churches," in *Architecture of the Eastern Churches*, ed. J. M. Hornus (Birmingham, 1981), 13–26. For those of the examples in Armenia, see my paper "Zvart'nots and the Origins of Christian Architecture in Armenia," *ArtB* 54 (1972), 245–62. The partially excavated tetraconch at Akdeğirmen Hüyük is attributed to the first half of the 5th century on the grounds of the style of its floor mosaics, but no documentation is provided for this attribution (Candemir and Wagner, loc. cit.). Yet coins dating from the reigns of Emperors Anastasius, Maurice, and Phocas were



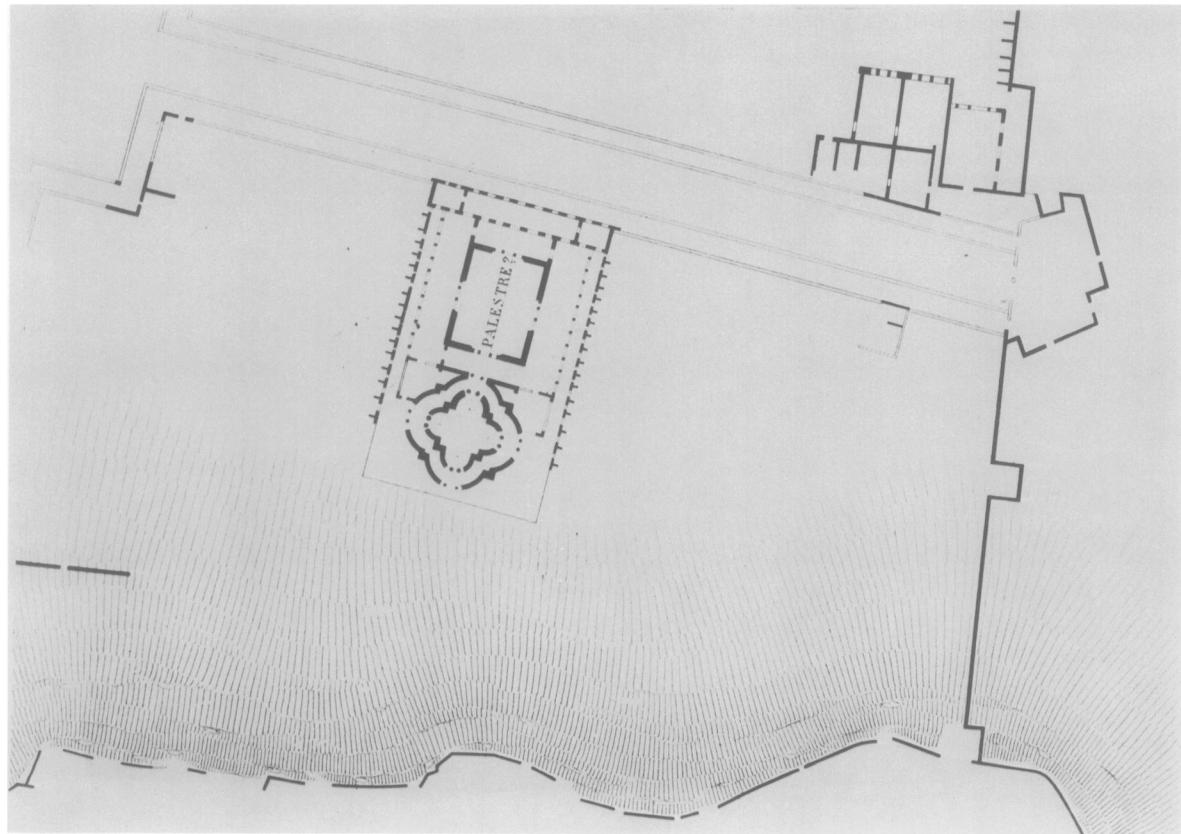
1. Perge, tetrakonch, sketch plan (plan: J. B. Ward-Perkins)



2. Perge, tetrakonch, view of ruins toward the south (1969)



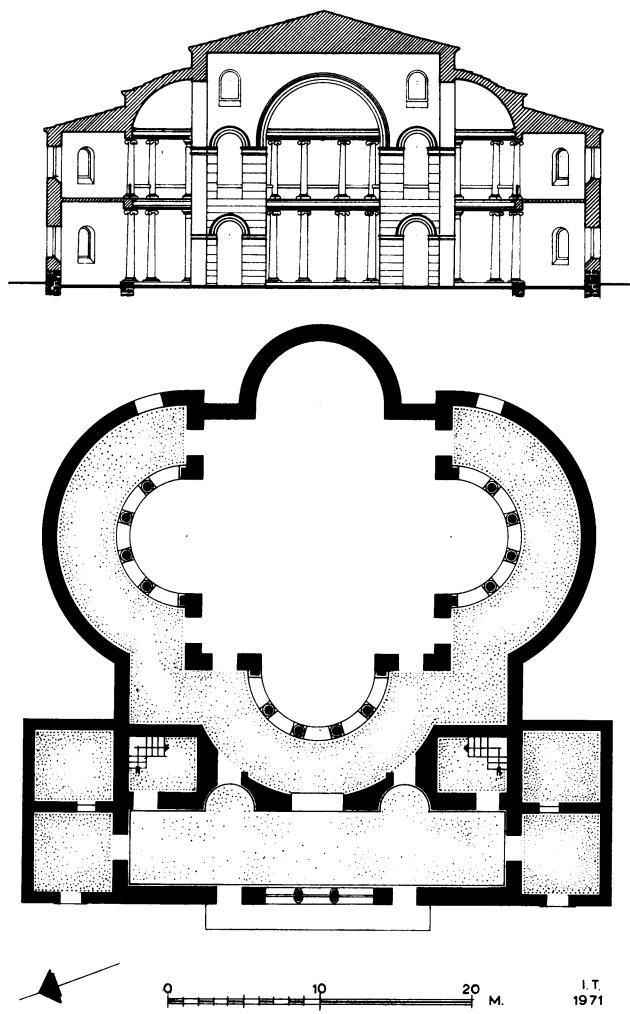
3. Perge, palaestra and tetracorch, plan (after P. Trémaux, *Exploration archéologique en Asie Mineure* [Paris, 1865–68], III, pl. 1)



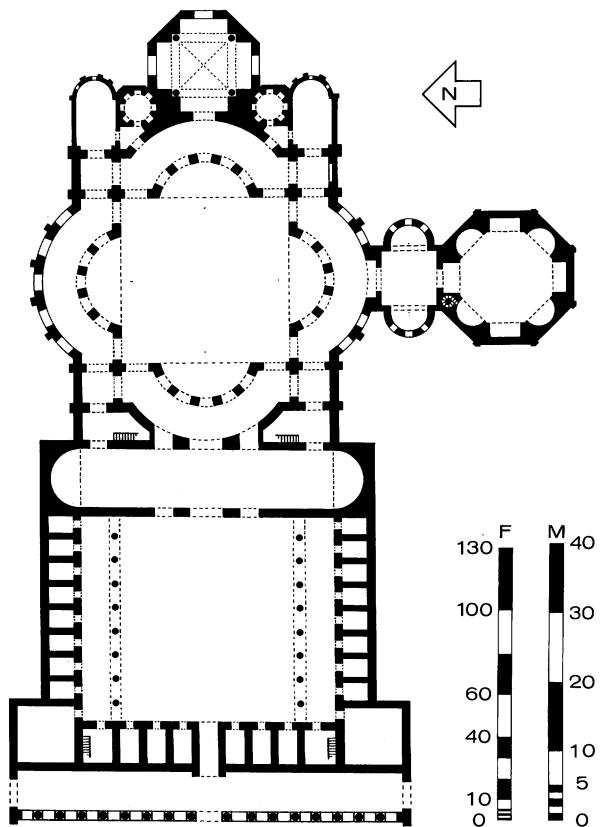
4. Perge, city plan (after K. Lanckoronski, *Städte Pamphyliens und Pisidiens* [Vienna, 1890], I, fig. 26)



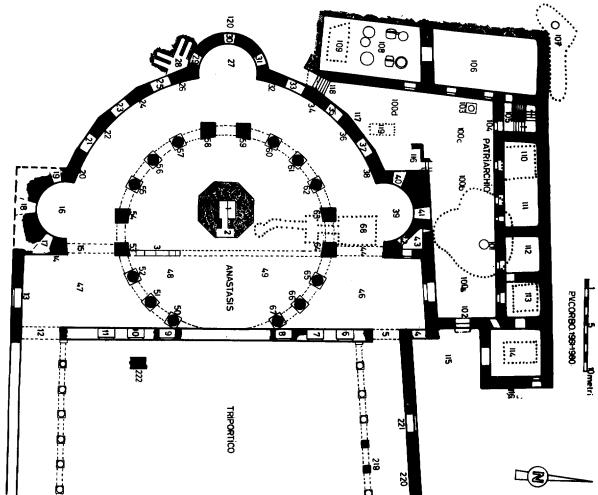
5. Perge, tetraconch, inner shell, detail (1969)



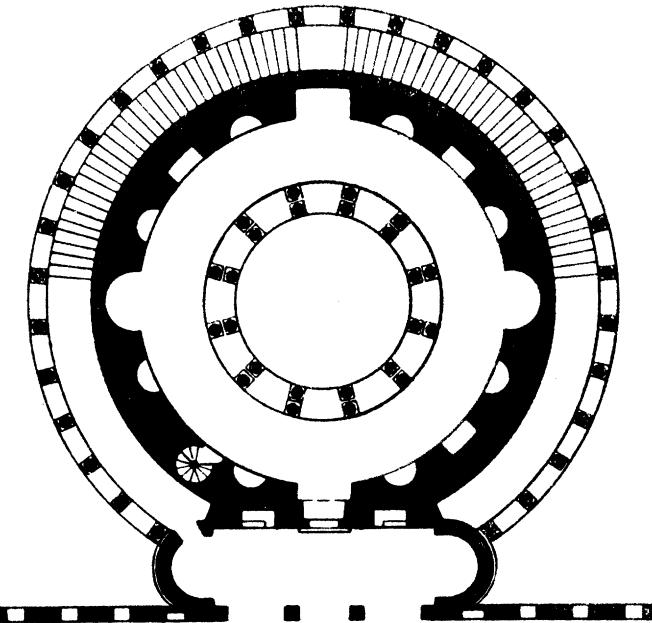
6. Athens, Stoa and Library of Hadrian, tetraconch, plan and section (plan: John Travlos)



7. Milan, Church of S. Lorenzo, restored plan, fourth century



8. Jerusalem, Basilica and Anastasis Rotunda on Golgotha, plan of fourth-century remains and later additions (after V. C. Corbo, *Il Santo Sepolcro di Gerusalemme* [Jerusalem, 1982], pl. 3)



9. Rome, S. Costanza, plan (after G. Dehio and G. v. Bezold, *Die kirchliche Baukunst des Abendlandes: Historische und systematisch dargestellt* [Stuttgart, 1887], Atlas, I, 1, pl. 8, 1)

The exception is the double-shell quatrefoil inside the complex known as the Stoa and Library of Emperor Hadrian at Athens, whose function has remained highly controversial (Fig. 6).²⁷ A recent discovery has eliminated the controversy.

Excavations carried out at the site by John Travlos in 1980 and published only in 1986 revealed the beginnings of walls of a colonnaded atrium, well bonded in with the original walls of the narthex of the tetraconch and thus coeval with it.²⁸ These important findings demonstrate conclusively that this building was originally laid out as a church, and thus set aside once and for all earlier arguments by Travlos himself and others that it was built as a secular monument.²⁹ The 1980 ex-

found at the site (ibid., 206). I prefer to hold the dating of this monument in abeyance. The excavators identify it as a church (ibid.). For the aisled tetraconch at Lin on the Albanian side of Lake Ochrid, I am unaware of any final publication, but preliminary studies of this edifice prove that it was a church, that it must have been modeled on the aisled tetraconch on the Yugoslavian side of Lake Ochrid, and that the same mosaic workshop executed the tessellated pavements for both these buildings, probably in the second quarter of the 6th century. See A. Duccellier, "Dernières découvertes sur des sites albanais du moyen âge," *Archeologia* 78 (January 1975), 35–45; Ruth Ellen Kolarik, *The Floor Mosaics of Stobi and Their Balkan Context*, Diss. (Harvard University, 1981 [1982]), 454–57, with references to earlier publications. For the original ecclesiastical function of the still insufficiently published tetraconch at Canosa, see G. M. Castelfranchi Falla, "Le principale fasi architettoniche del San Leucio di Canosa di Puglia," *Commentari* 1–2 (1976), 3–8; R. Moreno Cassano, "Mosaici paleocristiani di Puglia," *Mélanges de l'Ecole Française de Rome, Série Antiquité*, 88, no. 1 (1976), 277 ff, esp. 292 ff and figs. 52–54, for plans suggesting four building periods dating as early as the 6th century. I am grateful to Franco Schettini, the original excavator of S. Leucio, for allowing me to inspect the remains in 1965.

²⁷ For the Stoa and Library, see J. Travlos, *Pictorial Dictionary of Ancient Athens* (New York, 1971), 244–52, with earlier bibliography. Recently, T. L. Shear, Jr., "Athens: From City-State to Provincial Town," *Hesp* 50 (1981), 356–407, esp. 374–77, has argued that at the outset Emperor Hadrian founded the complex as an imperial forum, a great public square provided with gardens, a long pool down the center of the garden, the whole embellished with statuary and other works of art, and equipped with a suite of rooms commanding the east end, the center one of which was a library, those flanking it lecture halls. Excavations in 1969 resulted in the clearing of the east end of the complex and established that the northeastern room housed a theater: Travlos, op. cit., 579. Shear also believes that the complex was modeled specifically upon the Templum Pacis of Emperor Vespasian at Rome.

²⁸ J. Travlos, *Tὸ τετράκογχο οἰκοδόμημα τῆς Βιβλιοθηκῆς τοῦ Ἀδριανοῦ, Φιλία ἐπὴ εἰς Γεώργιον Ε. Μυλωνάν* (Athens, 1986), I, 343 ff. I am most grateful to Miss Alison Frantz for bringing this publication to my attention and for providing me with a photocopy of it.

²⁹ It was first identified as a church in what remains the fundamental publication on the site: M. A. Sisson, "The Stoa of Hadrian at Athens," *PBSR* 11 (1929), 50 ff. G. A. Soteriou, *Αἱ χριστιανικαὶ Θῆβαι τῆς Θεσσαλίας καὶ αἱ παλαιοχριστιανικαὶ Βασιλικαὶ τῆς Ἑλλάδος*, Ἀρχ. Ἐφ., 1929 (1931), 173–74, also identified the tetraconch as a church. When J. Travlos first pub-

cation has not, however, established the exact date of the tetraconch. A large statue of Herculius, prefect of Illyricum in 408–412, was erected by Plutarch, sophist and head of the Neo-Platonic Academy at Athens, just to the left of the single propylon entrance of the Stoa and Library. It now seems clear that this statue is unrelated to the construction of the tetraconch.³⁰ The Stoa and Library complex had been destroyed by the Herulians in 267 and was not rehabilitated for over a century. Excavations at the site before 1980 suggested that the peristyle of the complex was rebuilt with new columns on tall bases at the same time that the chambers at the east end of the whole complex were remodeled and the tetraconch itself was erected.³¹ Sherds attributed to the late fourth century have been found in the fill between the elongated rectangular pool decorating the central courtyard of the Hadrianic complex and the foundations of the tetraconch, thus suggesting a terminus post quem of ca. A.D. 400 for the tetraconch.³²

lished the tetraconch, he identified it as a secular edifice: 'Ανασκαφαὶ ἐν τῇ Βιβλιοθηκῇ τοῦ Ἀδριανοῦ, Προστ. Ἀρχ. Ἐτ., 1950 (1951), 41–63, but subsequently he reverted to an ecclesiastical foundation: Πολεοδομικὴ Ἐξέλιξις τῶν Ἀθηνῶν (Athens, 1960), 139 note 2; repeated in *Χριστιανικαὶ Ἀθῆναι*, in *Θρησκευτικὴ καὶ ἐθνικὴ ἐγκυροποιαδέα* 1 (Athens, 1962), 727, and again in *RBK* 1 (1966), 364 f, fig. 5. In 1971 he readopted his original identification of the building as secular (*Pictorial Dictionary*, 244).

³⁰ An inscription (*IG II² 4224*) on the left side of the entrance to the whole complex records the erection of the statue. See J. R. Martindale, *PLRE, II: A.D. 395–527* (Cambridge, 1980), 545, s.v. "Herculius 2." For Plutarch, *ibid.*, 893, s.v. "Plutarchus 2." The gratitude of the Athenian sophist to Herculius is recorded elsewhere. The sophist Apronianus also erected a statue of Herculius in front of the Stoa and Library of Hadrian: *IG II² 4225*; Martindale, *PLRE, II*, 124, s.v. "Apronianus 1." Cf. *IG II² 4227* for another statue of the prefect on the Acropolis of the city. Although the inscription mentioning Herculius was noted by Sisson, *op. cit.*, 64, its relationship to the rebuilding of the Stoa and Library and the construction of the tetraconch was first pointed out by Travlos, 'Ανασκαφαὶ, 44, 54–56. In a review of this article, P. Lemerle rejected this relationship (*REB* 13 [1955], 224). Travlos' original identification of the tetraconch as a secular edifice was subsequently upheld with persuasive arguments by A. Frantz, "Herculius in Athens: Pagan or Christian?" *Akten des VII. Internationalen Kongresses für christliche Archäologie, Trier 5–11 September 1965*, Studi di Antichità Cristiana 27 (Vatican City-Berlin, 1969), I, 527–29; *idem*, "From Paganism to Christianity in the Temples of Athens," *DOP* 19 (1965), 192 note 30, 196 notes 53–54; *idem*, "Honors to a Librarian," *Hesp* 35 (1966), 379 f. In private correspondence dated 14 September 1986 Miss Frantz, aware of the recent excavation bringing to light the atrium of the building, now believes that Herculius' activities were confined to the Library.

³¹ Travlos, *Pictorial Dictionary*, 244. For the early 5th-century A.D. column bases in the east peristyle of the complex, see Frantz, *Hesp* 35 (1966), 379 f, pl. 91. For the west end of the complex, where columns were found as spolia belonging to the reconditioning of the complex ca. 400–410, see *ArchRep* for 1982–83, no. 29 (1983), 9.

³² Travlos, 'Ανασκαφαὶ, 49 note 1.

The masonry construction of the tetraconch and the style of the polychrome mosaics laid in its ambulatories, narthex, and chambers adjoining the narthex point toward the first or second decade of the fifth century.³³ In these very years, around A.D. 400–410, a monumental civic building program suddenly erupted in Athens, but it is not known to have included any Christian edifices, at least in the Agora.³⁴ Even if the tetraconch was built as late as the middle of the fifth century, as Travlos now suggests,³⁵ it was the earliest church building recorded in the city.³⁶ Prominently situated inside an earlier

³³The rough rubble masonry with occasional horizontal brick courses is the characteristic manner of construction in early 5th-century buildings in Athens: H. A. Thompson, "Athenian Twilight: A.D. 267–600," *JRS* 49 (1959), 68; *idem*, "Activities in the Athenian Agora: 1958," *Hesp* 28 (1959), 103 f, fig. 1. The mosaic pavements compare very closely in my judgment with others in Athens that are dated to the beginning of the 5th century: for example, a fragmentary mosaic in one of the chambers of the old Metroon in the Athenian Agora, which is dated by coins to just after the reign of Emperors Arcadius and Honorius (395–408); see H. A. Thompson, "Buildings in the West Side of the Agora," *Hesp* 6 (1937), 198 f, figs. 121–22; M. Spiro, *Critical Corpus of the Mosaic Pavements on the Greek Mainland, Fourth/Sixth Centuries with Architectural Surveys* (New York, 1978), I, 1–5, pl. 4. Accepting a relationship between Herculius and the foundation of the tetraconch, Spiro dates the mosaic pavements of the latter to the first decade of the 5th century (*ibid.*, 14–26, esp. 15, pls. 10–23).

³⁴Thompson, "Athenian Twilight," 61 ff, esp. 66 ff; Travlos, *Pictorial Dictionary*, 3, 191, 233, 352, 538, 553; Frantz, "From Paganism to Christianity," 196; H. A. Thompson and R. E. Wycherly, *The Agora of Athens: The History, Shape and Uses of an Ancient City Center*, The Athenian Agora, vol. 14 (Princeton, 1972), 210 ff.

³⁵Travlos, *Tō τετράκογχο*, 346, without discussion. Still attributing the rehabilitation of the Stoa and Library to Herculius ca. 408–12, Travlos must be assuming that a few decades elapsed after that rehabilitation before the site was occupied by Christians for a new church building. A mid-5th-century date for the tetraconch is also proposed by J. Christern, in B. Brenk, *Spätantike und frühes Christentum*, Propyläen Kunstgeschichte, Suppl. 1 (Frankfurt, 1977), 173, 183, without discussion. Since it is hard to believe that two sophists would have erected statues on the entrance wall of a complex functioning as a church, the tetraconch must have been erected subsequent to the tenure of Herculius. A date between 412 and the mid-century remains quite possible, since Christianity seems to have been the majority religion in Athens already in the lifetime of Theagenes, a native of Athens and wealthy Christian benefactor of the Neo-Platonic Academy who flourished in mid-century: Damascius, *Leben des Philosophen Isidoros*, ed. R. Asmus (Leipzig, 1911), 93. For Theagenes, see Martindale, *PLRE*, II, 1063, s.v. "Theagenes." Indeed, Herculius was probably a Christian himself: see W. E. Kaegi, "The Fifth-Century Twilight of Byzantine Paganism," *ClMed* 27 (1966), 265.

³⁶For evidence of early Christian church buildings in Athens, consult E. P. Blegen, in *AJA* 50 (1946), 373 f; Travlos, *RBK* 1 (1966), 349 ff, s.v. "Athen"; T. E. Gregory, "The Christian Asklepieion in Athens," *Abstracts of Papers, Ninth Annual Byzantine Studies Conference, Duke University* (Durham, 1983), 39–40; J. M. Spieser, "La christianisation des sanctuaires païens en Grèce," in *Neue Forschungen in griechischen Heiligtümern, Internationalen Symposium in Olympia vom 10. bis 12. Oktober 1974*, Deutsches Archäologisches Institut, Abteilung Athen (Tübingen, 1976), 310–11.

imperial foundation, it must have represented a substantial benefaction.³⁷

The ecclesiastical functions of these comparanda do not prove that the building at Perge was also erected as a church; only excavations can settle its identification. The only clue to its original function is provided by the shallow bay interspersed between its center space and eastern conch; this bay and the thick walls at its short ends raise the possibility of a masonry semidome over this conch and establish a slightly accentuated east-west axis for the monument. Perge, too, then, may have been a church building. Otherwise it is the only known aisled tetraconch that fulfilled a non-ecclesiastical purpose.

The identification of the original functions of the aisled tetraconchs is critical for trying to trace the archetype of the architectural genus. If these buildings fulfilled secular and ecclesiastical functions alike, attempts to identify the archetype might prove futile or lead to sheer guesswork. If they were all church buildings, however, then their archetype might also have well been an ecclesiastical monument. But did these buildings reflect a single archetype or two or more prototypes? A unique archetype may be assumed because the aisled tetraconch structure, with or without galleries, is too highly specialized in design to have arisen spontaneously and independently in such diverse parts of the empire.³⁸ This is an assumption which I want to stress; the ensuing discussion is predicated upon it.

Since all known aisled tetraconchs (with the possible exception of Perge) were built to serve as church buildings, it may be asked whether the archetype of this genus was also an ecclesiastical monument. Surely a pagan archetype may be ruled out of consideration, for church officials would have objected to it on religious grounds. A

³⁷Writing before the 1980 excavation in front of the tetraconch, C. Delvoye, *L'art byzantin* (Paris, 1967), 67, and D. De Bernardi Ferrero, "L'edificio nell'interno della cosiddetto biblioteca di Adriano ad Atene," *CorsiRav* 22 (1975), 171–88, esp. 182 ff, both believe that Aelia Eudocia (Athenais), the daughter of the Athenian sophist Leontius, who married Emperor Theodosius II in 421, founded the building as a church, a point of view for which neither writer offered a shred of evidence. Interestingly, however, the Christian basilica by the Ilissos in Athens is commonly attributed to this empress (Frantz, "From Paganism to Christianity," 194), and she certainly founded the original church of St. Polyeuktos at Constantinople: *Anthologia graeca*, I, 10. Travlos himself once attributed the tetraconch to Emperors Arcadius and Honorius ("Athen," 364).

³⁸On this point I concur completely with J. B. Ward-Perkins, "The Italian Element in Late Roman and Early Medieval Architecture," *ProcBrAc* 33 (1947), 15 (I cite the separately printed offprint).

secular archetype remains conceivable, especially if it were associated with the person of a Christian emperor. In this case the transfer of the building type from the realm of secular architecture to church building would have to have been based on a set of relevant or plausible factors. In my judgment it is far more likely that the ultimate source of the double-shell tetraconch edifices was a church building, and a church building of great prominence that would have been known throughout a wide geographical area, from Milan to Alexandria and to the Tigris. Further, the formal layout of the archetype would have to have borne close resemblance to the aisled tetraconch edifices. It would have been a double-shell central plan structure sharing the salient architectural lines of the aisled tetraconchs, with the exception of ancillary chambers.

When and where might such a double-shell tetraconch have been erected? First, no known historical reasons exist to believe that any of the preserved aisled tetraconchs served as the fountainhead for the other examples. A distinct and now destroyed monument may therefore be safely assumed. Since it must have been erected before the earliest datable aisled tetraconch that is preserved, it is logical to launch a search for the missing archetype by examining the earliest datable example, S. Lorenzo at Milan (Fig. 7). Although the exact date of this well-known church has not been established, all current studies devoted to this question concur that the building was erected during the second half of the fourth century; and a number of scholars suspect that it may well have been an imperial foundation.³⁹ A significant portion of the original structure still survives, though the church was remodeled in the Romanesque period and again during the later sixteenth century. So far as it can be envisaged, the original, fourth-century layout of the church was a competent architectural organism, high in imagination and sophistication, perhaps the best designed building that is known to us from the century. But it is not great architecture; in fact, it is a derivative building. For example, it possessed galleries, a major design element that is otherwise unknown in Italy

³⁹ See, most recently, R. Krautheimer, *Three Christian Capitals: Topography and Politics* (Berkeley, 1983), 81–92, with citations of earlier publications. Here Krautheimer dates the church to the years between 375–376 and 378, and argues that it had imperial backing and was erected as the cathedral of the anti-Nicene faction at Milan. F. W. Deichmann, *Einführung in die christliche Archäologie* (Darmstadt, 1983), 246, also thinks that the church was “possibly an imperial foundation.”

until the sixth century.⁴⁰ In the East Mediterranean, on the other hand, galleries occur in basilican and central-plan buildings alike from the earlier fourth century on. The original, fourth-century Hagia Sophia at Constantinople was a basilica which contained galleries, and basilican churches of the following century in the imperial city featured them as a rule.⁴¹ But they were not confined to that locality. The Constantinian basilica and perhaps the original Anastasis Rotunda of the Holy Sepulcher compound at Jerusalem were laid out with galleries.⁴² Galleries were definitely present in the central-plan cathedral at Antioch in Syria, first planned in 327 (see below). Even the second preserved example in Italy of a church with galleries, S. Vitale at Ravenna, is widely believed to reflect an East Mediterranean model, in all probability a Constantinopolitan building, as is suggested by the churches of SS. Sergius and Bacchus and St. John in the Hebdomon.⁴³ Thus, the

⁴⁰ For galleries, consult F. W. Deichmann, in *RAC* 2 (1959), 255–64, s.v. “Empore”; C. Delvoye, in *RBK* 2 (1971), 129–44, s.v. “Empore”; J. Christern, “Emporenkirchen in Nordafrika,” *Akten des VII. Internationalen Kongresses für christliche Archäologie* (above, note 30), 1, 407–25; B. Schellewald, “Zur Typologie, Entwicklung und Funktion von Oberräumen in Syrien, Armenien und Byzanz,” *JbAC* 27/28 (1984/85), 171–218. While galleries occur in many imperial foundations of the 4th century, they are not exclusive to them. The only other example of a church with galleries in the Latin West that antedates the 6th century is the north church of the double cathedral at Trier, as remodeled in the time of Emperor Gratian, about 380. This remodeled church, in effect, a double-shell square edifice, bears a striking resemblance in this and other salient aspects to S. Lorenzo at Milan which, possibly, influenced its remodeling: see Krautheimer, *Early Christian and Byzantine Architecture* (above, note 20), 90, fig. 42; W. Eugene Kleinbauer, “*Aedita in turribus*”: The Superstructure of the Early Christian Church of S. Lorenzo in Milan,” *Gesta* 15 (1976), 6–7, for the derivation of the remodeled church from S. Lorenzo at Milan.

⁴¹ See, most recently, Krautheimer, *Three Christian Capitals*, 50 ff, for a reconstruction of the 4th-century Hagia Sophia with galleries. Though its date of foundation is not securely established, it may have been planned as early as 335–337: Krautheimer, “Constantinian Basilica,” 133 note 61. But see H. G. Beck, “Constantinople: The Rise of a New Capital in the East,” in *Age of Spirituality: A Symposium*, ed. K. Weitzmann (Princeton, 1980), 29 (attribution to Constantius). For galleries in other pre-iconoclastic churches in the imperial city, see T. F. Mathews, *The Early Churches of Constantinople: Architecture and Liturgy* (University Park, 1971), 22 f, *passim*; and the works cited in note 40 above.

⁴² Krautheimer, *Early Christian and Byzantine Architecture*^{3 rev.}, 62 (the basilica at Jerusalem), 490 note 11 (Anastasis Rotunda); Deichmann, “Empore,” 1260; Delvoye, “Empore,” 1341. Krautheimer, “Constantinian Basilica,” 133 note 60, suggested that the Constantinian church of the Nativity at Bethlehem possibly featured galleries, though no evidence attests to their presence.

⁴³ F. W. Deichmann, *Ravenna: Hauptstadt des spätantiken Abendlandes. Kommentar, 2. Teil* (Wiesbaden, 1976), 83–85, for a basic analysis of the derivation of S. Vitale from Constantinople and its formal relationship to other double-shell tetraconchs and oc-

presence of galleries in S. Lorenzo at Milan points to an eastern model for the church.⁴⁴

If the galleries of this church attest to a source in the East, does its double-shell configuration also point in that direction? The only other pre-iconoclastic example of this genus in Italy, or anywhere else in the Latin West for that matter, is the big church ruin known as S. Leucio at Canosa in Apulia. While the excavations at S. Leucio have not been properly published, preliminary studies suggest that this building was first laid out nearly two centuries after S. Lorenzo.⁴⁵ All other examples of this genus are situated to the east of Italy and suggest that the archetype might be located in the East Mediterranean as well.

The largest concentration of such buildings occurs in Syria and northern Mesopotamia, and they date from the second half of the fifth century and the sixth.⁴⁶ This fact recently led H. Buchwald to conjecture that the source of the Pergaean tetraconch was Syrian.⁴⁷ The possibility that the Per-

taconchs. For the church in the Hebdomon, see Mathews, *Early Churches*, 55–61; W. Kleiss, "Bemerkungen zur Kirche Johannes des Täufers in Istanbul-Bakirköy (Hebdomon), *Mansel's Armagan: Mélanges Mansel*, Türk Tarih Kurumu Yayınları, Dizi VII—Sa. 60 (Ankara, 1974), I, 207–19. See, however, J. Ebersolt, *Sanctuaires de Byzance: Recherches sur les anciens trésors des églises de Constantinople* (Paris, 1921), 83, where a basilican layout is suggested on the basis of a literary source. For important observations on the topography of the church, see C. Mango, in *BZ* 68 (1975), 390–91.

⁴⁴This point has often been made: see, e.g., Ward-Perkins, "Italian Element," 13 (of separate reprint); Krautheimer, *Early Christian and Byzantine Architecture*^{3 rev.}, 85–86; Deichmann, *Ravenna*, 83; idem, *Einführung*, 246. For the masons building the church, see W. Eugene Kleinbauer, "Toward a Dating of San Lorenzo at Milan: Masonry and Building Methods of Milanese Roman and Early Christian Architecture," *ArtL* 13 (1968), 1 ff, esp. 16–17. For a different interpretation of the masons, consult S. Lewis, "San Lorenzo Revisited: A Theodosian Palace Church at Milan," *JSAH* 32 (1973), 201 f.

⁴⁵See note 26 above.

⁴⁶Kleinbauer, "Origin and Functions," 89 ff. For a slightly modified plan of the edifice at Seleucia Pieria, see Brenk, op. cit., 225, fig. 56 (by J. Lassus). Excavations at Bosra have led to new findings: see S. Cerulli, "La cattedrale dei Ss. Sergio, Bacco e Leonzio a Bosra," *FR* 109–10 (1975), 163–86, fig. 9 (new plan); G. Gualandi, "Una città caravaniéra della Siria meridionale: Bosra romana e la recente esplorazione archeologica nella cattedrale dei Ss. Sergio, Bacco e Leonzio," op. cit., 187–239. For recent observations on the church of the el 'Adhra at Amida, see G. Bell, *The Churches and Monasteries of the Tur 'Abdin*, with an introduction and notes by M. M. Mango (London, 1982), 24 ff, 107 ff, figs. 14, 51, pls. 13–24; M. C. Mundell, "The Sixth Century Sculpture of the Monastery of Deir Za 'Faran in Mesopotamia," *Actes du XVe Congrès International d'Etudes Byzantines, Athènes—Septembre 1976*, II. *Art et archéologie, Communications B* (Athens, 1981), 510–28.

⁴⁷Buchwald, loc. cit. I find no direct link between the tetraconch at Perge and the Tomb Church *extra muros* at Corycus, which has been incorrectly restored by G. Stanzl, *Längsbau und Zentralbau als Grundthemen der frühchristlichen Architektur: Überle-*

gæan tetraconch may antedate the earliest preserved Syrian example does not exclude such a derivation, because the type may have existed in Syria at an earlier date. In fact, some years ago I argued that the preserved examples in Syria and northern Mesopotamia all go back to a single prototype of early date in that region.⁴⁸ That prototype was identified as the cathedral at Antioch. This church was planned by Emperor Constantine the Great in 327 and was dedicated at an *encaenia* summoned by his son Emperor Constantius in 341.⁴⁹ From the outset it functioned as the cathedral and principal congregational church of the capital of Syria and, toward the end of the fourth century, as the patriarchal church of Orients, a supra-metropolis claiming supremacy over all of the vast ecclesiastical jurisdiction.⁵⁰ Thus, it would have provided a natural, if not spontaneous, model for other cathedrals and metropolitan churches under its direct jurisdiction. Unfortunately, the layout of the Antiochian cathedral cannot be ascertained in all of its essential details. Since excavations at Antioch have failed to uncover the ruins of the church, our knowledge of it depends on literary sources, especially Eusebius. Eusebius informs us that the church was two-storied, and he seems to tell us that it was double-shelled: *κύκλω δὲ ὑπερώων τε καὶ κατεγένων χωρημάτων ἀπανταχόθεν περιεστούχισμένον* (*Vita Constantini* III, 50).⁵¹ But his account of the shape of the building—he terms it *δικτάεδρος*—is to my mind open to interpretation. Other commentators on this passage have believed that *δικτάεδρος* refers to an octagon and have reconstructed the building as octagonal in shape, reminiscent of the churches of SS. Sergius and Bacchus at Constantinople and S. Vitale at Ravenna.⁵² But Eusebius does not specify

gungen zur Entstehung der Kuppelbasilika, DenkWien 139 (Vienna, 1979), 85–86, pl. 31, fig. 2, as demonstrated by Buchwald, loc. cit.

⁴⁸Kleinbauer, "Origin and Functions," 108 ff.

⁴⁹Ibid., 111. For the pertinent historical documentation, G. Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest* (Princeton, 1961), 342 ff, *passim*; F. W. Deichmann, "Das Oktogon von Antiochia: Heroon-Martyrium, Palastkirche oder Kathedral?" *BZ* 65 (1972), 40–56, *rpr. in his Rom, Ravenna, Konstantinopel, Naher Osten* (above, note 21), 783–99.

⁵⁰Kleinbauer, "Origin and Functions," 109–10.

⁵¹Ibid., 111, citing the full Greek texts by Eusebius.

⁵²See, e.g., W. Dynes, "The First Christian Palace Church Type," *Marsyas* 11 (1962–64), 1–9. H. A. Drake, *In Praise of Constantine: A Historical Study and New Translation of Eusebius' Tricennial Orations* (Berkeley, 1976), 101, translated Eusebius' account of the church in *Triakontaeterikos* 9, 15 as having an "eight-walled plan." The aisled tetraconchs at, say, Bosra and Adrianople, make it clear that a quatrefoil inner shell can be enclosed by an outer shell of a completely different shape.

whether ὄκταεδος refers to the inner shell, the outer shell, or even some other conspicuous feature of the edifice. It is not at all certain that he saw a building with eight sides. This uncertainty notwithstanding, all of us agree that the church was a central-plan, double-shell edifice with galleries above the lower story. Thus, as early as 327, in the capital of Syria, a building embodying the double-shell concept, be it tetraconch or octaconch, was designed, and it was planned with direct imperial sponsorship.

Such a reconstruction of the cathedral at Antioch is not required to establish the existence of the double-shell concept as early as the reign of Constantine. Two other edifices founded by Constantine, or by members of his house, prove that this building type existed by the middle of the fourth century—that is, before S. Lorenzo at Milan was planned. The first, and perhaps the earlier of the two, is the Anastasis Rotunda of the Holy Sepulcher compound at Jerusalem.⁵³ The Anastasis was a huge rotunda 33.70 m in diameter, which comprised an irregularly shaped circular center space (19.5 m in diameter) defined by supports and surrounded by ambulatories, with semicircular niches in the west, north, and south sides of the thick perimeter wall (Fig. 8). Thus it was a double-shell building. Perhaps the main (east) facade was a straight wall pierced by openings. (The cathedral at Antioch also apparently featured a reverse alignment.⁵⁴) That galleries surmounted the ambulatories is possible but not certain; and originally a wood dome probably crowned the edifice.⁵⁵ Planned under Constantine, possibly as early as 326, it was apparently under construction before his death in 337 and seems to have been in use by ca. 350.⁵⁶ Although the Rotunda and the cathedral

⁵³ For the excavated remains, see V. C. Corbo, *Il Santo Sepolcro di Gerusalemme: Aspetti archeologici dalle origini al periodo cruciato*, Studium Biblicum Franciscanum, Collectio major, no. 29 (Jerusalem, 1982), 68 ff, pl. 3, where it is argued on the basis of physical remains that the Rotunda was begun and completed under Constantine the Great in a single campaign: ". . . un solo programma di costruzione . . . in un solo tempo" (p. 51).

⁵⁴ Theodoret *HE*, V, 35 (ed. Parmentier, 338, 2) mentions an *agora* in front of the Antiochian cathedral, and his account suggests that the church stood on the eastern side of the square.

⁵⁵ Galleries in the original edifice are accepted by Corbo, op. cit., 79; Krautheimer, *Early Christian and Byzantine Architecture*, ^{3 rev.}, 78 and fig. 27B; Brenk, op. cit., 192.

⁵⁶ The compound may have been planned as early as 326 (F. W. Deichmann, "Die Architektur des konstantinischen Zeitalters," in his *Rom, Ravenna, Konstantinopel, Naher Osten*, 121). No secure evidence proves how early the rotunda was planned or construction began, but Bishop Cyril of Jerusalem, *Catech.*, XVIII, 33 implies that by 350 there was a separate church around the Tomb. See Krautheimer, *Early Christian and Byzantine Architecture*, ^{3 rev.}, 78 and fig. 27B; Brenk, op. cit., 192.

at Antioch were both dedicated to Christ, they differed functionally: the Rotunda was both a memorial building commemorating the site of Christ's burial and his resurrection and the most important pilgrimage church in late Antiquity. Yet both double-shell buildings were Constantinian foundations, with their plans drawn up possibly within a year of each other.

Earlier Roman provincial architecture in Palestine fails to provide a possible source for the plan of the Anastasis Rotunda.⁵⁷ Surely the design of the edifice was imported, either by the architect Zenobius or by Eustathius, a presbyter from Constantinople, either (or both) of whom was in all probability dispatched by Constantine's imperial architectural offices at Constantinople, and perhaps as an essential part of the emperor's religious policy with special reference to promoting the unity of Christendom.⁵⁸ Although he was still peripatetic in the 320s, Constantine is known to have been in Constantinople in 326, and again in the following year.⁵⁹ Yet his presence would not have been required for the drawing up of architectural plans, which would have been left in the hands of an appropriate imperial office.⁶⁰

Byzantine Architecture, ^{3 rev.}, 490 note 11; E. D. Hunt, *Holy Land Pilgrimage in the Later Roman Empire AD 312–460* (Oxford, 1982), 11–12.

⁵⁷ Deichmann, "Empore," 1260; Brenk, op. cit., 192. The solid ashlar construction is, of course, rooted in local Palestinian practice.

⁵⁸ For the problem of the exact responsibilities of Zenobius and Eustathius, see C. Mango, *The Art of the Byzantine Empire, 312–1453* (Englewood Cliffs, 1972), 14 note 37; Krautheimer, *Early Christian and Byzantine Architecture*, ^{3 rev.}, 62, 67. For the thesis that the Holy Sepulcher compound, the "New Jerusalem," as Eusebius terms it, was founded by Constantine as an essential piece of his religious policy, see W. Telfer, "Constantine's Holy Land Plan," *Studia patristica* 1 (1957), 696–700. Cf. R. MacMullen, *Constantine* (New York, 1969), 108–10.

⁵⁹ T. D. Barnes, *The New Empire of Diocletian and Constantine* (Cambridge, Mass., 1982), 76, who suspects that from 324 to 330 Constantine's principal residence was at Nicomedia, and from 330 to 337 at Constantinople. Cf. note 81 below. Both Deichmann, "Empore," 1260, and Brenk, loc. cit., maintain that the plans for the Holy Sepulcher arrived from the imperial atelier at Constantinople. This is denied by R. Krautheimer, "Constantine's Church Foundations," *Akten des VII. Internationalen Kongresses für christliche Archäologie* (above, note 30), 241, who believes that Eustathius transmitted the plan of the Holy Sepulcher basilica to Constantinople.

⁶⁰ No literary sources refer to an "architectural office" in the imperial capital, so that its existence is hypothetical. Surely, however, Constantine had created such an office at least for the new streets and secular buildings in the city. See C. Mango, "The Development of Constantinople as an Urban Centre, 17th International Byzantine Congress, Major Papers, Dumbarton Oaks/Georgetown University, Washington, D.C., August 3–8, 1986" (New Rochelle, N.Y., 1986), 117 ff. The earliest reference to the transmittal of architectural plans or designs from one center to another in the late antique world is Mark the Deacon's *Life of Por-*

The second example of a double-shell central-plan building is the mausoleum of Constantina, the daughter of Constantine, which is situated on the Via Nomentana at Rome.⁶¹ During her widowhood and residence at Rome from 337 to 350, Constantina seems to have built, or possibly remodeled, a preexisting building, the church of S. Agnese, against whose long south flank the mausoleum was erected. Literary or epigraphic evidence fails to provide the specific date of foundation of the mausoleum, but it may have been planned as early as the years 337–350.⁶² And it seems to have been ready to receive Constantina's body in 354. Far better preserved than the Anastasis Rotunda, this edifice consists of a circular core surrounded by twelve radially disposed pairs of columns, united by an arcade supporting a high drum with twelve windows, and a dome. A continuous barrel-vaulted ambulatory encircles the domed center shell and is enclosed by a thick perimeter wall pierced by three large niches on the cardinal axes and twelve smaller niches in the diagonals (Fig. 9). An external peristyle encasing the whole is now gone. Although the edifice lacks galleries, its plan and elevation are so reminiscent of the slightly earlier Anastasis Rotunda as to suggest a link between the two buildings. The diameters of the inner central spaces are almost the same. The unmistakable cross-shape indicated by the three niches in the perimeter wall of the Anastasis Rotunda is repeated in S. Costanza, not only by the three larger niches but also by the fact that the arches in the main axes of the center space are wider and higher than the others; and again those on the longitudinal (north-south) axis, above and opposite the big niche in the south perimeter wall, are slightly wider and higher than those on the transverse axis, whereas the smaller niches in the perimeter wall do not correspond to the arcades. This cruciform pattern is visible when one enters the north ambulatory and faces south. If Constantina's mausoleum was not modeled directly upon

phry, 78 (trans. Mango, *Art of the Byzantine Empire*, 31), which reports that Empress Eudoxia ca. 402–7 shipped a plan (*skarphos*) to Gaza for the church building replacing the Marneion.

⁶¹ F. W. Deichmann, *Frühchristliche Kirchen in Rom* (Basel, 1948), 25 ff, pls. 5–19, plan 4; M. Stettler, "Zur Rekonstruktion von S. Costanza," *RM* 58 (1943), 76–86; H. Brandenburg, *Roms frühchristliche Basiliken des 4. Jahrhunderts* (Munich, 1979), 93–115.

⁶² H. Stern, "Les mosaïques de l'église de Sainte-Costance à Rome," *DOP* 12 (1958), 157–218, esp. 160 ff, on the date; R. Krautheimer, "Mensa-Coemeterium-Martyrium," *CahArch* 11 (1960), 15–40, esp. 22. Deichmann, "Architektur des konstantinischen Zeitalters," 123, dates it before 350.

the Anastasis Rotunda, I submit that the two buildings share a common model.⁶³

Two important imperial mausolea were erected shortly before that of Constantine: that of the Empress Dowager Helena at Rome and that of Constantine himself, the church of the Holy Apostles at Constantinople. Helena's mausoleum was erected on the Via Labicana in the 310s and was probably intended by Constantine for his own burial before he moved to the East Mediterranean.⁶⁴ Like S. Costanza, it was appended to a basilican church, that of SS. Marcellino e Pietro, but stood at its west end, communicating with it through a common narthex. It was, however, a single-shell building, domed, with seven semicircular and rectangular niches piercing its perimeter wall. It belongs to a different, older, and more conservative architectural genus than the double-shell building type.⁶⁵ For the Apostoleion at Constantinople we are dependent upon literary sources and presumed filiations which Krautheimer and others have examined at length.⁶⁶ So far as can be determined, this church, begun before 337, was a cruciform-shaped building consisting of a square(?) space from which projected four aisled or aisleless wings. Later, in 359, the emperor's body was relocated in a new mausoleum which his son Constantinus had erected adjacent to the Apostoleion.⁶⁷ Possibly a rotunda, the plan of this sepulcher is unrecorded, but on account of its late date it cannot have provided the model for either the Anastasis Rotunda at Jerusalem or the mauso-

⁶³ Ibid., for a direct dependence upon the Anastasis Rotunda. Elsewhere Deichmann emphasizes the revolutionary character of the plan of S. Costanza, when compared to the plans of earlier centralized buildings at Rome: "Römische Zentralbauten: Vom Zentralraum zur Zentralbau. Ein Versuch," in his *Rom, Ravenna, Konstantinopel, Naher Osten*, 47–55.

⁶⁴ F. W. Deichmann and A. Tschira, "Das Mausoleum der Kaiserin Helena und die Basilika der Heiligen Marcellinus und Peter an der Via Labicana vor Rom," *JDAI* 72 (1957), 44–110, rpr. in Deichmann, *Rom, Ravenna, Konstantinopel, Naher Osten*, 305–73, with a Postscript on 374; J. Guyon, L. Strüber, and D. Manacorda, "Recherches autour de la basilique constantinienne des Saints Pierre et Marcellin sur la via Labicana à Rome: Le mausolée et l'enclos du nord de la basilique," *Mélanges de l'Ecole Française de Rome, Antiquité*, 93, no. 2 (1981), 999 ff.

⁶⁵ Deichmann, "Architektur des konstantinischen Zeitalters," 115 f, who traces this type of niched edifice back to ca. A.D. 200.

⁶⁶ R. Krautheimer, "Zu Konstantins Apostelkirche in Konstantinopel," *Mullus: Festschrift Theodor Klauser = JbAC, Ergänzungsband* 1 (1964), 224–29; idem, *Three Christian Capitals*, 56 ff, passim. For the older literature, see G. Dagron, *Naissance d'une capitale: Constantinople et ses institutions de 330 à 451* (Paris, 1974), 401 ff.

⁶⁷ Krautheimer, *Three Christian Capitals*, 60; idem, "Zu Konstantins Apostelkirche," 229.

leum of Constantina.⁶⁸ Rather, we may wonder whether it reflected their layout by means of a common source, perhaps in Constantinople itself.

There is reason to believe that the double-shell central-plan building existed in fourth-century Constantinople. Two or three edifices supply the evidence. The first is the building which was first identified and described by A. M. Schneider as the martyrium of SS. Karpus and Papylus.⁶⁹ The identification, though not implausible, is not certain, and definite indication of date other than that afforded by the preserved remains is wanting. These remains consist of the substructures of what appears to have been a circular church with internal colonnade and ambulatories, and a projecting apsed chancel to the east flanked by one (or two) side chambers.⁷⁰ Schneider attributed these remains to ca. A.D. 400, but a somewhat earlier date cannot be ruled out of consideration because of the absence of structures in the imperial city which can be securely dated well within the fourth century. A late tradition ascribing the foundation of this building to Helena, while interesting, is without foundation, and thus was altogether rejected by Schneider. Whatever its exact date, this building strongly suggests that the double-shell concept was known at Constantinople no later than the end of the fourth century. While it has been identified as an early copy of the Anastasis Rotunda at Jerusalem, it perhaps actually derives from an earlier model in the imperial capital itself.⁷¹ A second building of this type that may have existed in the capital in the same century is the martyrium in the Hebdomon which Emperor Theodosius I (379–395) erected to shelter the head of St. John Prodromos. This edifice is described as a “round roofed church that has conches” (στρογγυλόστεγος

⁶⁸ Was it a niched rotunda, like the mausoleum of Helena at Rome, or a double-shell building? When Constantine's mausoleum was entered, the visitor stood at the west end of the building and faced the imperial sarcophagus at the east end (G. Downey, “The Tombs of the Byzantine Emperors at the Church of the Holy Apostles in Constantinople,” *JHS* 72 [1959], 42 f.). A similar arrangement marked S. Costanza at Rome.

⁶⁹ A. M. Schneider, *Byzanz*, *IstForsch* 8 (Berlin, 1936), 1–4. Cf. W. Müller-Wiener, *Bildlexikon zur Topographie Istanbuls. Byzantion-Konstantinopolis-Istanbul bis zum Beginn des 17. Jahrhunderts* (Tübingen, 1977), 186 f.

⁷⁰ This layout is conjectured by J. B. Ward-Perkins, “Notes on the Structure and Building Methods of Early Byzantine Architecture,” in *The Great Palace of the Byzantine Emperors, Second Report*, ed. D. T. Rice (Edinburgh, 1958), 69 f.

⁷¹ Krautheimer, *Early Christian and Byzantine Architecture*^{3 rev.}, 78, makes this identification, while S. Eyice, “Les églises byzantines à plan central d'Istanbul,” *CorsiRav* 26 (1979), 140, says that the edifice had the form of the Anastasis.

ό ἔχων τὰς κόγχας).⁷² It seems likely that this is the church which Procopius attributes to Emperor Justinian I, and which has been reconstructed on the basis of quite limited physical remains as a double-shell octaconc with galleries. Was Justinian's church a restoration rather than a radical transformation of the preexisting church?⁷³ Possibly this relative of the churches of SS. Sergius and Bacchus at Constantinople and S. Vitale at Ravenna already stood in the later fourth century. The third building at Constantinople is the τετράχορον τοῦ ἀποστόλου Παύλου in the Imperial Palace, which Byzantine sources also term a Pentacubiculum (Πεντακουζούκλεῖον). It may be envisaged as a centralized structure, with a central core, perhaps domed, surrounded by four curved exedrae—in other words, a tetracorona. It is said to be a foundation of Emperor Basil I (867–886), but we may ask whether it too may have been a restoration of an earlier building.⁷⁴ While the *Vita Basilii* reveals that the emperor did construct churches and chapels *de novo* in the Great Palace and in other imperial residences, his effort in Constantinople and its suburbs was almost exclusively directed to the repair of damaged churches and the rebuilding from the ground up of church buildings that had entirely collapsed.⁷⁵ Thus we may wonder whether the tetracorona of the Apostle Paul represented the rebuilding of an older church which repeated or echoed the salient lines of the original plan.

Lastly, there are four aisled tetracorona located in the upper Balkan peninsula: the Hagia Sophia at Adrianople (modern Edirne), the “Red Church” at Perushtitsa, and two unnamed buildings on Lake Ochrid, all of which have been attributed to

⁷² For the Theodosian foundation, *Patria Constantinopoleos*, 145, text trans. Mango, op. cit., 29, whose translation I cite.

⁷³ For the Justinianic building, Procopius, *De aed.*, I, 8. Compare the remarks by Mathews and Kleiss in note 43 above. On the reliability of Procopius *De aed.*, see A. Cameron, *Procopius and the Sixth Century* (Berkeley, 1985), 84–112, *passim*.

⁷⁴ The literary sources are collected and translated in Mango, op. cit., 164, 196, 198, 208, (208 note 127, for the reconstruction mentioned here). A. Frolov, in *BByzI* 2 (1950), 452 note 1, believing it to be a tetracorona in plan, wonders whether it had been only restored by Basil, and cites a letter of Gregory the Great (*Epist.* IV, 30) to the wife of Emperor Maurice, in which the empress' request for the translation of relics of Paul to a church in his honor in the Imperial Palace at Constantinople is denied. Cf. R. Janin, *La géographie ecclésiastique de l'Empire byzantin, Première partie, Le siège de Constantinople et le patriarcat oecuménique. III, Les églises et les monastères*, 2nd ed. (Paris, 1969), 393.

⁷⁵ As pointed out by C. Mango, “The Life of St. Andrew the Fool Reconsidered,” *RSBS* 2 (1982), 302 (rpr. in his *Byzantium and Its Image: History and Culture of the Byzantine Empire and Its Heritage* [London, 1984], no. VIII).

the late fifth century or the sixth.⁷⁶ Their very location suggests a possible link to Constantinople. Adrianople was the first major staging point to the west of Constantinople, being located on the principal highway from Asia Minor to the Balkans.⁷⁷ The sawtooth bands decorating the north facade of the "Red Church" are a feature occurring in Constantinople and suggest a connection between this church building and the capital. Such a link can be further established by the vaulting of the edifice and by its murals, which have been traced to the imperial city.⁷⁸

In sum, the material presented here demonstrates that the double-shell concept was known in the later Constantinian period, as early as 326 or 327, and that Emperor Constantine himself sponsored two buildings embodying that concept; his daughter erected a third example. The date and imperial patronage of these buildings cannot be merely coincidental: in the last decade of the emperor's life architects working under his direct sponsorship employed the concept in three major centers specially favored by him. Was the genus therefore a Constantinian innovation? It is not known to have existed in the pre-Constantinian period, though archeology always has surprises in store for us. Some specialists have theorized that aisled tetraconchs occurred earlier, and their theory might seem to be supported by the recent excavation of a palace or villa at Gamzigrad, which included a kind of *pentacubiculum*. Whether this residence was imperial or official is unclear; it dates to the end of the third century or the very start of the fourth.⁷⁹ The tetraconch at Gamzigrad

⁷⁶ For three of these buildings, see Grossmann, *op. cit.* (above, note 22), fig. 3, including a new reconstruction of the Hagia Sophia at Adrianople. For the fourth, the aisled tetraconch at Lin, see note 26 above.

⁷⁷ C. J. Jireček, *Die Heerstrasse von Belgrad nach Constantinopel und die Balkanpässe* (Prague, 1877), 47 f, 99 f, 132 f; V. Bešeliev, "Bemerkungen über die antiken Heerstrassen im Ostteil der Balkanhalbinsel," *Klio* 51 (1969), 483 ff.

⁷⁸ For the source of the decorative bands, see P. L. Vocopoulos, "The Role of Constantinopolitan Architecture during the Middle and Late Byzantine Period," *Akten des XVI. Internationalen Byzantinistenkongress Wien, 4.–9. Oktober 1981*, I/2 (= *JÖB* 31/2 [1981]), 571 note 89, fig. 9. For the source of the vaulting, see Deichmann, *Einführung*, 261; *idem*, *BZ* 52 (1959), 129. For the murals, see A. Grabar, *The Golden Age of Justinian*, trans. S. Gilbert and J. Emmons (New York, 1967), 182. Cf. P. Filov, *Geschichte der althalburischen Kunst* (Berlin, 1932), 4.

⁷⁹ M. Čanak Medić, *Gamzigrad, kasnoantička palata: Arhitektura i prostorni sklop*, Saopštenja Republički zavod za zaštitu spomenika kulture SR Srbije (Belgrade, 1978); M. Mirković, "Eine spätromische befestigte Villa in der Provinz Dacia Ripensis," in *Palast und Hütte; Beiträge zum Bauen und Wohnen im Altertum von Archäologen, Vor- und Frühgeschichtlern*, ed. D. Papenfuss and

is, however, aisleless, and bears no relation whatever in scale, design, or function to the buildings here under consideration. It was a bath building. Rather than point to this structure as an antecedent of the double-shell tetraconch, or postulate lost examples of such a layout, we are reconstructing the historical record more accurately by underscoring the avant-garde character of the double-shell central building type as a complete architectural concept, be it circular, a tetraconch, octaconch, or even hexaconch. Nor does this type stand alone as an innovative architectural conception in the East Mediterranean in the age of Constantine. For example, the Constantinian church of the Nativity at Bethlehem consisted of an octagonal structure featuring an ambulatory round a circular opening fused to one short end of an aisled basilican structure, a design without known precedent.⁸⁰

Although a link may exist between S. Costanza and the Anastasis Rotunda, no model-copy relationship can be established between the latter and the cathedral at Antioch. The archetype must have been invented elsewhere. No conclusive evidence proves that it originated at Constantinople, but several indications point in that direction.⁸¹ The ecclesiastical functions of the Anastasis Rotunda and the cathedral of Antioch suggest that the archetype was a church building at Constantinople.

V. M. Strocka (Mainz, 1982), 485–92, which probes the question of the function of the complex. For the presumption of a secular, pre-Constantinian tetraconch edifice, see I. Lavin, "The House of the Lord: Aspects of the Role of Palace Triclinia in the Architecture of Late Antiquity and the Early Middle Ages," *ArtB* 44 (1962), 1–27, esp. 21; and, in particular, Krautheimer, *Early Christian and Byzantine Architecture*^{3 rev.}, 66, 78, 80–82, 240–43; *idem*, "Success and Failure in Late Antique Church Planning," in *Age of Spirituality* (above, note 41), 121–39, esp. 131–34.

⁸⁰ Krautheimer, "Constantinian Basilica," 133 note 60, with earlier bibliography, and fig. 8E. Significantly, the best parallels to this design are the Constantinian foundations of SS. Marcellino e Pietro at Rome (Krautheimer, "Mensa-Coemeterium-Martyrium" [above, note 62], 15 ff, fig. 5; also see note 64 above) and Old St. Peter's at Rome (Krautheimer, *Early Christian and Byzantine Architecture*^{3 rev.}, 55–60 and figs. 21–22). In the former building a niched rotunda adjoins the narthex of a basilica, in the latter a transept adjoins a basilica.

⁸¹ The only other East Mediterranean center where the double-shell concept may have been created is Nicomedia, possibly Constantine's principal residence in the 320s (see note 59 above). Nicomedia had experienced a building boom under Diocletian, and the extent of Constantine's building activity there is unrecorded, save for a reference by Eusebius to a big and sumptuous church in honor of Christ, "a memorial of victory over his enemies and the adversaries of God (VC, III, 50, trans. Mango, *op. cit.*, 11). For other churches in the city, see *RE* 33 (1936), 491, s.v. "Nikomedie" by W. Ruge.

All we can do is wonder whether it was one of the "many places of worship and martyrs' shrines of great size and beauty" that Eusebius reports Emperor Constantine built in that city.⁸² Whatever its

⁸² Constantine is said to have planned a new imperial palace and one or more churches dedicated to Christ at Constantinople, but their arrangements are unrecorded. See C. Mango, *The Brazen House: A Study of the Vestibule of the Imperial Palace of Constantinople*, Det Kongelige Danske Videnskabernes Selskab, Arkæologisk-kunsthistoriske Meddeleser 4, 4 (Copenhagen, 1959); R. Janin, *Constantinople byzantine: Développement urbain et répertoire topographique*, 2d ed. (Paris, 1964), 106 ff; Dagron, op. cit., 88 f, 92 ff; Müller-Wiener, op. cit., 20, 144. For the reference to Eusebius see *VC*, III, 44.

identity, it was an innovative and influential monument which was conceived at a place and time—surely between 324 and 326 or 327—that witnessed the introduction of a number of novel architectural plans and a flurry of building activity to accommodate the new seat of the government and the Christian faith in the East, indeed a revolutionary and decisive period in the history of western architecture.

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